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- *Fall Comdex Wrap-Up*
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- *The Sinclair QL Returns!*

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# ATARI

## Applying The Atari

### Machine Language Alphabetizer, Halley's Comet Program

by Jeff Brenner

I hope you're putting last month's Personal Appointment Calendar/Editor to good use. This month we'll learn more about PACE, calculate data on Halley's Comet, and enter an alphabetizing program that features machine language sorting and storage capability. Let's first take a look at some letters...

#### Reader Mail

Q. I am a first time reader of your column - I am very impressed. I would like to make another comment. It's in the form of a question: Why is the Program Perfect code a three-digit or three-letter code when they all end in "J"? Why not truncate the third letter and you'll have more room than your readers are asking for? I was just wondering about that.

Michael Bonkowski  
Madison Heights, MI

A. You ask a very good question, since it does appear that the last character of the Program Perfect codes is always the same. This third character is used by Program Perfect to determine the next program line number for the automatic line numbering feature. Not only does this make it unnecessary to type line numbers when using Program Perfect, but

it ensures that all lines of the program are entered.

Since line numbers of the programs in this column usually step by 10 (10, 20, 30, etc.), this third character is most often a "J" (the tenth character of the alphabet). But there are times when the line numbers do not continuously step by 10; September's Response Analysis Program is one example. In this program, the line numbers of the data statements (above 5000) step by varying amounts, and you can see that the third character in this listing changes appropriately. Additionally, the Program Perfect code of the last line of a program ends in a "Z". The "Z" signals Program Perfect to erase itself from memory.

Comment: I noticed in the 10/85 issue the problem you have had with the Basic B bug in the 800XL. Instead of getting the \$15 cartridge from Atari, I got a program from First Byte called Enhancements to BASIC. It not only eliminates the bug, but also upgrades Atari BASIC by adding some excellent functions such as TRACE and DIR (disk listing straight from BASIC). And best of all, it was only \$14.95. Their address is First Byte, P.O. Box 32, Rices Landing, PA 15357.

John A. Dunaway  
Goodlettsville, TN

A. Thanks for the info!

### Newsletters

Another two newsletters were in the mail for this month. SPACE Probes is printed by the South-Central Pennsylvania Atari Computer Enthusiasts (P.O. Box 11446, Harrisburg, PA 17108-1446). A-BUG-BYTE Newsletter is printed by the Atari - Brookville Users Group (10781 West National Road, Brookville, OH 45309).

### Halley's Comet Program

There are still a few months left to catch a glimpse of Halley's comet. Halley's Comet is a public domain program and is listed this month for those interested in calculating information about the comet. When it is run, the program will ask you to enter the year, the month and the day. It will take about 20 seconds to calculate and will then display the comet's geocentric right ascension (RA) and declination (DEC), distance from the sun and earth in astronomical units, predicted magnitude of brightness, and days to perihelion (the closest point to the sun). Angles are referred to the ecliptic and equinox of 1950.

After the calculations are displayed, you are given the option of making another calculation or getting a printout. Figure 1 shows a sample calculation printout for the date February 6, 1986.

maining features of last month's feature program, the Personal Appointment Calendar/Editor.

### Password

As mentioned last month, when

### DATA FOR COMET HALLEY

DATE: M/D/Y=2/6/1986  
DAYS TO PERIHELION.....-4

COORDINATES: epoch 1950  
RA :.....21HRS 8MIN  
DEC:.....-9DEG 41MIN

DISTANCES:  
COMET TO SUN.....0.591 AU  
COMET TO EARTH.....1.62 AU

PREDICTED MAG.....3.5 FIGURE 1

You astronomers out there may want to personalize the program to calculate data for your particular latitude and longitude, or add additional features and calculations, such as data for a specific time of day. Have fun and good luck comet-gazing!

More About PACE  
Now we'll learn about the re-

you create an appointment file when you use PACE for the first time, you're asked to enter a password. You can enter a password to protect your appointment calendar from peering eyes, or you can just press RETURN if you do not want a password. If you do choose a password, you'll

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### Book Review

## Robot Intelligence With Experiments & Project In Machine Intelligence

by David Heiserman — Tab Books

Reviewed by John A. D'Angelo

Have you ever read the novel entitled "Flatland"? This book details the adventures of a being who inhabits a two dimension world, and the effect that a visit of a creature from a three dimensional world has on him.

For a time now I have been examining a 2 dimensional world which is inhabited by creatures of low intelligence who exist on the flat phosper screen of my computer monitor. The fascinating thing is that this world was created by a computer program as a study of artificial intelligence.

I am introducing to you two books written by Dave Heiserman entitled, "Robot Intelligence With Experiments (TAB 1191 \$10.95)", and "Project In Machine Intelligence

For Your Home Computer (TAB 1391 \$10.95)", both books are available from TAB Books Inc. Blue Ridge Summit, PA 17214.

Dave Heiserman has written about a way to visualize artificial intelligence in action on your computer screen and uses a number of Basic subroutines to accomplish this.

First an area is created by placing a border along the edges of your computer screen, then an "Alpha creature" is created which looks like a small square. The creature is able to move about freely and also has the ability to be aware of its immediate environment. If the creature senses anything which restricts its movement it will stop moving and make a

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## HabaWriter Word Processor for the Atari 520ST

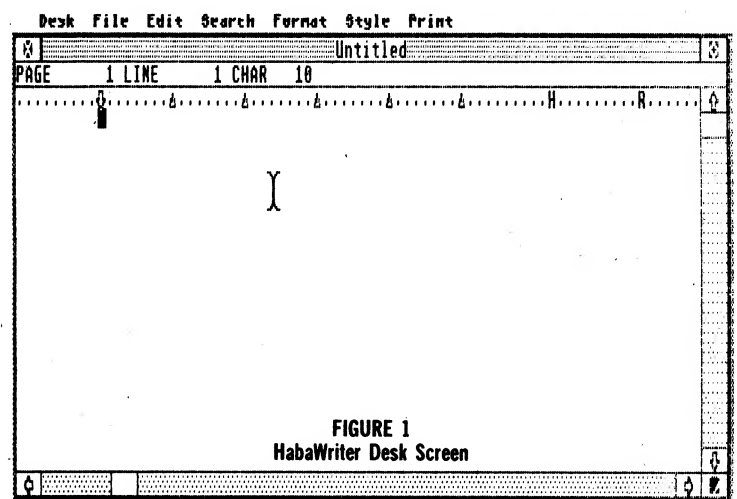
List price: \$74.95

by Clay Houston

I am typing this review on the HabaWriter Word Processor while I'm learning the operation. I am not a novice to word processors as I have access to some high quality, versatile systems and my first impression of the HabaWriter is that it's GOOD. I had a little trouble getting use to the various key control from memory but now that I'm getting up to speed, I find more and more good features.

The disk is protected but you can use it in a two drive setup as long as you keep the master in "A" when booting or in a one drive arrangement by booting with the master and then swapping to your work disk. Having a two disk setup with second and a double sided one, I elected to copy all to "B" leaving the master in "A" and eliminate the wear and tear on the master. You can get a master replacement by sending \$10 and your original to Haba.

I then double clicked



WRITER.PRg in Disk B and after a short commercial the outline of Figure 1 appeared. It has seven (7) drop down menus which will basically lead you through the system. There is a cursor, a mouse pointer that flips back and forth between an arrow and an "I" (for insert), a ruler, horizontal and a vertical scroll bars and the status bar which

shows page, line and character number. Also on the screen is the Ruler line which shows the current Tab settings, the left and right typing limits and the 'H' for the Hot Zone where words should be divided at the end of the line. The little triangles denote where the Tabs are set.

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# Atari Help

by Jeff Brenner

Q. I have an Atari 400 computer which is used by my preschool children. They easily use the cartridge programs available but cannot load our cassette programs. They also have trouble waiting for me to load them. Since we have several good programs on cassette, I am looking for a way to convert these cartridges. Is there such a procedure? If so, where may I have it done and what would be the approximate cost?

Glenda York  
Prattville, AL

A. Unfortunately, it is impractical to store your cassette programs in cartridge form. First of all, the programs would have to be in machine language (programs that load by pressing START when you turn on the computer). BASIC programs (those that load with CLOAD) could not be placed in cartridge form. Second, even if the programs were in machine language, they would have to be relocated to run in the memory area that the cartridge uses. Relocating a program is a tedious, complicated task and you would need to know a good deal about machine language to do it. Third, the cartridge making procedure itself (you would need an EPROM burner and blank EPROMs) is not simple.

A disk drive is a much more feasible solution, although I do not know if you had this kind of investment in mind -- the Atari 1050 is currently being sold for around \$150. With a disk drive, programs could be loaded by turning the disk drive on, inserting the diskette and turning the computer on. Diskette programs can be made to run automatically once they are loaded. I know of several families in which the preschool children have learned to use the disk drive. The disk drive is also much faster than the cassette recorder, has a greater variety of software available for it, and lends itself to more serious applications.

Q. We bought an Atari computer set-up comprised of the following: Atari 800XL, (2) 1050 disk drives, 1027 printer, 1010 recorder and modem. My question to you is about this modem. Will it work with this system? The box containing my modem says "THE COMMUNICATOR II Atari 400/800 Computer System." It contains a TELELINK II program cartridge, an Atari 835 direct-connect modem plus literature.

Also, I would like to brag

about Atari: I complained about the "B BASIC" in my 800XL and they promptly sent me a cartridge of "C" BASIC -- YEAH ATARI! *Computer Shopper* is great, very helpful and informative.

Kenneth W. Faries  
Nacogdoches, TX

A. The Atari 835 modem was released when the Atari 400 and 800 models were still in production, and was designed to match the color and style of the Atari 400/800. The newer Atari 1030 direct-connect modem was designed to match the XL series. The 835 is otherwise compatible with the 1030 and should work fine with your 800XL and the Telelink II cartridge. Of course, the best way to see if the modem works is to hook it up and try it out! You can start by calling some Atari bulletin boards listed in *Computer Shopper's* bulletin board section. Good luck!

I'm glad to hear that Atari sent you the revision C BASIC cartridge at no charge. Unfortunately, many Atari owners, including myself, had to part with fifteen bucks to get it. I have always felt that Atari should have provided revision C BASIC at no charge to those Atari owners who got stuck with revision B.

Q. I am a fairly new reader of *Computer Shopper* and I think your Atari column is great. Can you tell me if it is possible with an Atari 800 and a modem to access any BBS or data bank or can you only reach other Atari systems?

Jerry Burt  
Greenville, PA

A. One of the most important aspects of the modem is that it converts the output from a computer to a standardized signal that can be sent along the phone lines and interpreted by any other modem (using the same baud rate, of course). This allows virtually any two computers to communicate with each other. Hence, your Atari 800 can send and receive text to and from an Apple II+, a Commodore 64, or an IBM PC. You can even communicate with an Amiga, an Atari ST, or a Macintosh. Sometimes a specialized terminal program is used by both the receiving and sending computers to provide features such as special text formatting or graphics images. For the majority of BBS's however, any communications software, such as Telelink, will be adequate.

If you want to download software you would have to be

sure the programs are Atari compatible, since you would be running the actual program on your computer. There are plenty of BBS's that cater specifically to Atari owners and offer Atari-compatible public domain programs that can be downloaded. See *Computer Shopper's* "Bulletin Board" section this issue.

Q. I won an Atari 1027 printer and, as you know, this will not use more than one sheet in the rollers. Consequently, adhesive address labels are out. Instead I use Avery labels (nr. 5357) making a master sheet of the addresses and then photocopying them. The problem: If there is a list of more than 30 addresses (or one sheet) the printer must be stopped to allow for inserting a fresh sheet of paper, but how am I going to resume printing where I left off? Is there a way to do so?

Niek Vanerlee  
Kingston, ON, Canada

A. Here is a simple one-line solution that will allow you to interrupt printing and continue at any time:

```
1241 IF PEEK(764) = 33
      THEN 1241
```

To pause printing, press the space bar. Printing will stop as soon as the program finishes printing the current address. Printing can be resumed by pressing any other key.

This will allow you to change label sheets when you are printing more than a page of addresses. Just press the space bar while the last address on the sheet is being printed. When this address has been printed, the program will

pause and you will be able to insert and position a new sheet. Pressing any other key will then continue the printing.

Q. I have typed in Super Clock (*Computer Shopper*, October 1985) and have attempted to change the clock to a 24-hour format. I have not been successful so far. (HELP!)

Hendell Helfrick  
Springfield, OH

A. Following is a listing of modifications and additions that can be made to Super Clock for a 24-hour format. To change the clock display, modify lines 50, 60, 300, 380

## CHANGES FOR 24-HOUR CLOCK:

```
50 FOR T=0 TO 360 STEP 15:POSITION 19+SIGN(T)*16,11-COS(T)*9.75
60 PRINT T/15;NEXT T
300 IF H>24 THEN H=H-24
380 POKE 706,PEEK(705):POKE 705,S#4:IF PEEK(764)=33 THEN FL=0:GOTO 410
400 HA=15*(H+M/120):MA=6*M
425 IF PEEK(764)=33 THEN 200
```

Listing 1

## CHANGES FOR 4-LINE MAILING LIST:

```
1245 SKIP=0:FOR J=1 TO LEN(NAME$):IF NAME$(J,J)<>"/" THEN NEXT J:GOTO 1250
1246 NAME$(J,J)=CHR$(155):SKIP=SKIP+1:NEXT J
1270 IF Q=0 THEN NAME2$=NAME$:ADDR2$=ADDR$:CSZ2$=CSZ$:GOTO 1282
1320 FOR I=1 TO VS-SKIP:PRINT #5:NEXT I:GOTO 1240
```

Listing 2

and 400 and add line 425.

Q. How can I change Mailing List (*Computer Shopper*, June 1985) to a four-line program. I would like to have, say, a principal's name on one line and a school's on another

Eugene Curtis  
Toledo, OH

A. The entire architecture of Mailing List's data structure is based on the three line format (plus additional characters for the category). Therefore it is not a simple task to modify the program for four lines. However, there is a way around this, and it involves splitting the first line up into two or more lines. Here's how

down by the additional line.

While this is a clever method of obtaining the four lines, there are two limitations: First, the total number of characters on the first and "extra" lines cannot exceed the number of characters (32) normally allocated for the first line. Second, whenever labels utilizing this extra line technique are to be printed, only single-column printing can be used; the extra line will interfere with double-column label printing.

Address Atari-related questions to: Jeff Brenner, "Atari Help", c/o *Computer Shopper*, P.O. Box F, Titusville, FL 32781-9990.

## Applying The Atari continued from page 69

be given three chances to enter it correctly whenever you run the program. After the third try, the program will erase itself (the data -- namely your appointments -- is saved on the disk and will not be erased). This is why it is a good idea to choose a password you can remember, or otherwise choose no password at all. Each member of the family can have his or her own "plan diskette," and password, if wanted.

## Defining Control Keys

One feature that was not discussed last month is the control-key redefinition. After you enter "Y" to the "Want to enter appointments?" prompt, you're asked if you want to define the control keys. You can define up to ten control keys, from CONTROL-A to CONTROL-J, and each key can

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## INSTANT ALPHABETIZER

```
VVJ 10 REM INSTANT ALPHABETIZER
GGJ 20 REM WITH MACHINE LANGUAGE SORTER
KHJ 30 REM COPYRIGHT 1986 JEFF BRENNER
RWJ 40 LN=38
HLJ 50 DIM ABC$(109),IN$(257),SP$(255),D$(25),ID$(7):IN$(257)=CHR$(0)
AKJ 60 MAX=INT((FRE(0)-500)/LN):DIM DAT$(MAX*LN):DAT$(MAX*LN)=CHR$(0)
YIJ 70 TRAP 1010:GOSUB 1040:SP$(1)=CHR$(32):SP$(255)=CHR$(32):SP$(2)=SP$
NNJ 80 OPEN #1,0,"K:"
WJ 90 TRAP 1010:CLOSE #3
PKJ 100 PRINT CHR$(125):POKE 85,10:IN$="INSTANT ALPHABETIZER"
IRJ 110 FOR I=1 TO LEN(IN$):PRINT CHR$(ASC(IN$(I,I))+128):NEXT I:PRINT
AWJ 120 POKE 85,10:PRINT CHR$(40):CHR$(99):CHR$(41):"1986 JEFF BRENNER"
TCJ 130 POSITION 2,4:PRINT "<ENTER NEW LIST TO BE ALPHABETIZED>:PRINT
VLJ 140 PRINT "<LOAD A PREVIOUSLY SAVED LIST>:PRINT
SIJ 150 PRINT "<DISPLAY ALPHABETIZED LIST ON SCREEN>:PRINT
SSJ 160 PRINT "<PRINT ALPHABETIZED LIST ON PRINTER>:PRINT
VVJ 170 PRINT "<ADD ITEMS AND RE-ALPHABETIZE>:PRINT
JDJ 180 PRINT "<REMOVE ITEMS FROM LIST>:PRINT
IWJ 190 PRINT "<SAVE ALPHABETIZED LIST>:PRINT
EJJ 200 GOSUB 960
KPJ 210 IF C=0 AND N<69 AND N<76 THEN 310
TYJ 220 PRINT CHR$(125):
FWJ 230 IF N=69 THEN C=0:GOTO 330
UWJ 240 IF N=65 THEN C=C+1:GOTO 330
SWJ 250 IF N=68 THEN 480
SHJ 260 IF N=80 THEN 520
SZJ 270 IF N=76 THEN 590
SRJ 280 IF N=82 THEN 710
SWJ 290 IF N=83 THEN 830
AGJ 300 GOSUB 1000:GOTO 90
GRJ 310 PRINT CHR$(125):"NO ITEMS IN MEMORY YET"
MCJ 320 PRINT "MUST ENTER OR LOAD ITEMS:GOTO 500
JFJ 330 PRINT "YOU CAN ENTER UP TO "MAX;" LINES"
QJ 340 PRINT "OF "LN;" CHARACTERS EACH."
DJJ 350 IF C=MAX THEN PRINT "YOU HAVE REACHED MAXIMUM # OF ENTRIES:GOTO 500
KYJ 360 PRINT "TYPE EACH ITEM AND PRESS RETURN."
RVJ 370 PRINT "PRESS RETURN ON AN EMPTY LINE WHEN"
QJ 380 PRINT "FINISHED ENTERING ITEMS."
RBJ 390 IF C=0 THEN C=1
KAJ 400 FOR C=C TO MAX:PRINT
KWJ 410 PRINT "ENTRY #":C:":INPUT #1:IN$:IF LEN(IN$)=0 THEN 450
```

program continued on page 186

# Trivia Mania

by Jeff Brenner

The phenomenal success of the board game, Trivial Pursuit, has spawned hundreds of imitations and spinoffs, and for good reason: Trivia has been synonymous with big-bucks over the past two holiday seasons and everybody is trying to grab a share of the trivia market. Software manufacturers are no exception, and one of the newest entries into the computer trivia genre is *Trivia Mania*, from XLENT software.

As with most trivia games, the object of *Trivia Mania* is to score the greatest number of points by answering questions that exist mainly for the pur-

pose of being answered. Unlike other trivia computer games, though, such as Suncom's *Pary Quiz*, *Trivia Mania*, which bills itself as "The Trivia Construction Set," lets you create your own trivia questions and answers. Sadly, however, this nice feature by itself does not compensate for this program's lack of playability.

## The Game

Included in the software package are two double-sided diskettes. The first diskette contains the main program on one side and a trivia databases on the other. The second diskette contains two additional database, one on each side.

The trivia databases contain material covering six categories: general trivia, sports trivia, movies trivia, television trivia, commercials/ads trivia and science trivia. Each database contains 100 questions per category. Three databases and six categories give you a total of 1800 questions.

Questions are chosen randomly from the database of a particular category. Before questions are given, you can choose to have the correct answer displayed when a question is answered incorrectly. The questions themselves are not the challenging, really-search-your-memory type that

you would find in a Trivial Pursuit game. Rather, most of the questions in the *Trivia Mania* databases deal with contemporary facts, and real trivia-buffs may be disappointed. Following are some

typical questions:

Q. Snatches and clean jerks sports:

- 1) Weight Lifting
- 2) Housekeeping

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## Applying The Atari

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be programmed to "hold" up to 24 characters. This feature is ideal for plans that repeat often during the month or year. For example, if you play tennis every Thursday, you could define CONTROL-A to be "8:30 PM Tennis club." Then, when entering appointments for any Thursday, you could press CONTROL-A and "8:30PM Tennis club" will be added to the screen. You could also define other keys for "Pay bills," "10:00AM Chemistry Class," etc.

## Important Entries

As mentioned briefly last month, you can place an asterisk (\*) at the beginning of any appointment line on the PACE Appointment Display, and you will be reminded of that appointment when it is within seven days away. Such plans will be displayed on the "Upcoming Important Entries" screen that follows the "Tomorrow's Appointments" display. This feature is perfect to use with birthdays, deadlines, or any other dates for which you would need a reminder several days in advance.

## Setting the Year

When setting the present date or choosing a date to enter appointments, the display shows the year 1985 and can be moved up to 2000 with the OPTION key. To make the program start by displaying 1986, change line 30 to:

30 MIN = 1986

This will save you from having to press the OPTION key to change the year each time you enter the date. The original program started with 1985 since most *COMPUTER SHOPPER* subscribers received the January 1986 in 1985. Next year you could change

this line to MIN = 1987, and so forth.

Since the program uses 366 records, a particular day of any year is stored in a record for that day. Hence, February 15, 1986 and February 15, 1987 are the same record. It is still possible however, to make appointments for more than one year in advance. In this case, you either label a line of February 15, 1986 screen "1987:." Then when PACE cycled back around the February in the year 1987, you could delete the 1986 data and make note of the 1987. Or, you can use a completely different data diskette that you could label, "1987."

## Instant Alphabetizer

This month's feature program is a data alphabetizer that uses a machine language sort for super fast operation. The program also allows you to save and load alphabetized lists to and from diskette or cassette, delete items from an alphabetized list, add items to the list, or print the alphabetized list on the printer.

A similar type of program was the subject of the very first "Applying The Atari" column (August 1984), but this program took a very long time to alphabetize, save or load data.

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## Instant Alphabetizer continued from page 70

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XCJ 420 IF LEN(IN$)<LN THEN IN$(LEN(IN$)+1)=SP$
QRJ 430 DAT$(C$LN-LN+4,C$LN+3)=IN$
AFJ 440 NEXT C:PRINT "MAXIMUM ITEMS REACHED.":GOTO 470
YVJ 450 C=C-1:IF C>1 THEN A=USR(ADR(ABC$),ADR(DAT$)+3,C,LN)
YVJ 460 GOTO 90
SLJ 470 C=C-1:A=USR(ADR(ABC$),ADR(DAT$)+3,C,LN):GOTO 500
QQJ 480 POKE 85,4:PRINT "PRESS CONTROL-1 TO PAUSE/CONTINUE"
XQJ 490 PRINT "FOR I=1 TO C:PRINT I;";CHR$(32);DAT$(I$LN-LN+4,I$LN+3):NEXT I
MQJ 500 PRINT "POKE 85,9:PRINT "PRESS <RETURN> FOR MENU":POKE 764,255
TSJ 510 GET #1,N:GOTO 90
RCJ 520 PRINT "PRINT WITH NUMBERED LINES (Y/N)?":GET #1,N:PRINT CHR$(N)
SYJ 530 SKIP=0:IF N=78 THEN SKIP=1:GOTO 550
VFJ 540 IF N<>89 THEN 520
XDJ 550 PRINT "TURN PRINTER ON AND PRESS <RETURN>":POKE 764,255
NQJ 560 GET #1,N:OPEN #3,8,0,"P;":PRINT #3:FOR I=1 TO C
XBJ 570 IF SKIP=0 THEN PRINT #3;I;";CHR$(32);
PAJ 580 PRINT #3;DAT$(I$LN-LN+4,I$LN+3):NEXT I:PRINT #3:GOTO 90
JFJ 590 PRINT "LOAD FROM CASSETTE OR DISK (C/D)":
GCJ 600 GET #1,N:PRINT CHR$(N):IF N=67 THEN D$="C;":I=128:GOTO 650
TGJ 610 IF N<>68 THEN 90
EIJ 620 I=0:D$="D;":PRINT "ENTER FILENAME: ";INPUT #16;IN$
SEJ 630 IF IN$(2,2)=";" OR IN$(3,3)=";" THEN D$=IN$:GOTO 650
SLJ 640 D$(LEN(D$)+1)=IN$
QYJ 650 POKE 881,0:OPEN #3,4,1,D$:POKE 889,255
VQJ 660 H=INT(ADR(DAT$)/256):L=ADR(DAT$)-H*256:POKE 885,H:POKE 884,L
YVJ 670 POKE 882,7:A=USR(ADR(10$),48)
JHJ 680 LN=ASC(DAT$(1)):H=ASC(DAT$(2)):L=ASC(DAT$(3))
CRJ 690 C=L+256*H
TDJ 700 PRINT "DATA HAS BEEN LOADED":CLOSE #3:GOTO 500
OLJ 710 IF C=1 THEN PRINT "ONLY ONE ITEM IN MEMORY":GOTO 500
KSJ 720 PRINT "ENTER NUMBER OF ITEM TO REMOVE OR 0"
EKJ 730 PRINT "FOR MENU: ";
DIJ 740 TRAP 90:INPUT #16;NUM:IF NUM=0 THEN 90
AKJ 750 IF NUM<0 THEN PRINT "NO SUCH NUMBER - USE DISPLAY OPTION":GOTO 500
SCJ 760 PRINT "ITEM #";NUM;" IS: "
MFJ 770 PRINT DAT$(NUM$LN-LN+4,NUM$LN+3)
VRJ 780 PRINT "SURE YOU WANT TO DELETE THIS (Y/N)":GET #1,N:PRINT CHR$(N)
VNJ 790 IF N<>89 THEN 710
EZJ 800 IN$(1)=CHR$(255):IN$(257)=CHR$(255):IN$(2)=IN$
IOJ 810 DAT$(NUM$LN-LN+4,NUM$LN+3)=IN$:A=USR(ADR(ABC$),ADR(DAT$)+3,C,LN)
JYJ 820 C=C-1:PRINT "THAT ENTRY HAS BEEN REMOVED.":GOTO 500
ECJ 830 PRINT "SAVE TO CASSETTE OR DISK (C/D)":
DOJ 840 GET #1,N:PRINT CHR$(N):IF N=67 THEN D$="C;":I=128:GOTO 890
TMJ 850 IF N<>68 THEN 90
YYJ 860 I=0:D$="D;":PRINT "FILENAME TO SAVE UNDER: ";INPUT #16;IN$
SQJ 870 IF IN$(2,2)=";" OR IN$(3,3)=";" THEN D$=IN$:GOTO 890
SRJ 880 D$(LEN(D$)+1)=IN$
NHJ 890 H=INT(C/256):L=C-H*256:DAT$(1,1)=CHR$(LN):DAT$(2,2)=CHR$(H)
TQJ 900 DAT$(3,3)=CHR$(L)

```

Applying The Atari  
continued from page 185

It also did not provide for deleting entries from the alphabetized list. A question from reader John M. Hirsch (Normal, IL) who asked how to delete entries from the August 1984 program inspired me to create a vastly superior version. With Instant Alphabetizer, alphabetization takes a few seconds at most, data is saved to or loaded from the disk drive or cassette much faster, and a delete function has been implemented. Now you can get those names, book titles, record albums, computer programs, etc. in alphabetical order more efficiently than ever.

Use Program Perfect to enter the program under the "Instant Alphabetizer" heading. When you run the program, a menu will appear with the following options: Enter new listing to be alphabetized, Load a previously saved list, Display the alphabetized list on screen, Print the alphabetized list on the printer, Add items and re-alphabetize, Remove items from list, Save alphabetized list.

When you use the program for the first time, you'll want to use the "Enter new list" function, so press E. Depending upon the memory of your machine, you will be able to enter a certain number of lines of 38 characters each to be alphabetized. A 48K or 64K Atari can handle over 600 entries of 38 characters each, which is probably more than you'll ever need. If you do need more entries, you can make the size of each entry smaller by changing the value of LN on line 40 from 38 to a lower value. For example, if you want to enter twice as many items, change line 40 to:

LN = 19

You will now have a maximum of 19 characters per item. Similarly, you can increase LN if you need more characters per item but fewer items.

Enter each item and press RETURN on a blank line when done. Your list will be alphabetized and you'll be brought back to the menu screen. You can now save the data to cassette or diskette by pressing S.

Once an alphabetized list is in memory, you can press D to display the list on the screen, or you can press P to print it on your printer. When displaying on the screen, each item will be numbered so that you may refer to it if you want to delete it from the list. When you print the list to the printer, you'll be asked if you want to number each entry. Type Y if you want the entries to be numbered.

continued on page 187

```

SZJ 910 POKE 881,0:OPEN #3,8,1,D$:PRINT #3;DAT$(1,C$LN+10)
GOJ 920 REM H=INT(ADR(DAT$)/256):L=ADR(DAT$)-H*256:POKE 885,H:POKE 884,L
HCJ 930 REM H=(C$LN+10)/256:L=(C$LN+10)-H*256:POKE 889,H:POKE 888,L
LNJ 940 REM POKE 882,11:A=USR(ADR(10$),48)
RIJ 950 CLOSE #3:PRINT "DATA HAS BEEN SAVED":GOTO 500
GKJ 960 H=PEEK(84)
HJJ 970 POKE 702,64:POKE 694,0
YQJ 980 POSITION 2,H:PRINT "SELECT: ";CHR$(32);CHR$(126);
IIJ 990 GET #1,N:PRINT CHR$(N);:RETURN
RQJ 1000 SOUND 0,50,6,4:FOR I=1 TO 50:NEXT I:SOUND 0,0,0,0:RETURN
WQJ 1010 PRINT "ERROR #";PEEK(195);" AT LINE ";PEEK(186)+256*PEEK(187)
SXJ 1020 PRINT "TYPE ";CHR$(34);"CONT";CHR$(34);" TO RECOVER.":CLOSE #3:STOP
BMJ 1030 GOTO 90
NTJ 1040 DATA 104,104,133,204,104,133,203,104,133,212,104,133,211,104,104,133
LQJ 1050 DATA 209,165,203,133,207,165,204,133,208,162,0,134,210,134,213,232
JLJ 1060 DATA 165,207,133,205,24,101,209,133,207,165,208,133,206,105,0,133
CVJ 1070 DATA 208,160,0,177,207,209,205,240,4,144,9,176,27,200,196,209
OLJ 1080 DATA 176,22,144,239,164,209,132,210,136,177,207,133,214,177,205,145
JTJ 1090 DATA 207,165,214,145,205,136,16,241,232,208,2,230,213,228,211,208
JIJ 1100 DATA 191,165,212,197,213,208,185,165,210,208,166,96
BKJ 1110 PRINT CHR$(125);"STAND BY..."
UCJ 1120 FOR I=1 TO 108:READ N:TOT=TOT+N:ABC$(I,I)=CHR$(N):NEXT I
WLJ 1130 IF TOT<>17407 THEN PRINT "CHECK DATA LINES 1040-1100":STOP
SYJ 1140 DATA 104,104,104,170,76,86,228
LLJ 1150 FOR I=1 TO 7:READ N:IO$(I,I)=CHR$(N):NEXT I
DKJ 1160 RETURN

```

## HALLEY'S COMET PROGRAM

```

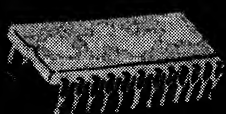
YUJ 10 REM HALLEY'S COMET PROGRAM
CIJ 20 REM ORIGINAL PROGRAM BY ROGER BROWNE
NJJ 30 OPEN #2,4,0,"K;":
BIJ 40 DIM C$(15),SP$(20),DT$(20),DA$(40)
XIJ 50 SP$(1)=CHR$(32):SP$(20)=CHR$(32):SP$(2)=SP$
WBJ 60 DT$(1)=CHR$(46):DT$(20)=CHR$(46):DT$(2)=DT$
TEJ 70 DA$(1)=CHR$(45):DA$(40)=CHR$(45):DA$(2)=DA$
IQJ 80 PI=3.14159265
ANJ 90 C$="COMET HALLEY"
EGJ 100 PH=1986.11
DVJ 110 PL=178.011
DZJ 120 AN=58.1453
EWJ 130 PY=76.0081
EVJ 140 SM=17.9435
GOJ 150 EO=0.967267
EJJ 160 ID=162.239
IJJ 170 GRAPHICS 0
SLJ 180 PRINT CHR$(125);:POKE 85,14:PRINT C$:POSITION 20,0:PRINT CHR$(255)
XZJ 190 FOR I=1 TO 18:PRINT CHR$(45);CHR$(32);:NEXT I:PRINT CHR$(45)
CPJ 200 POKE 85,11:PRINT "EPHEMERIS FOR DATES"
XYJ 210 POKE 85,10:PRINT "BETWEEN 1946 AND 2026"
XFJ 220 POKE 85,13:PRINT "by Roger Browne":PRINT
GBJ 230 PRN=0:PRINT "INPUT YEAR: ";INPUT #16;Y
UCJ 240 IF Y<1946 OR Y>2026 THEN 230
SHJ 250 PRINT "INPUT MONTH: ";INPUT #16;M
JCJ 260 IF M<1 OR M>12 THEN 250
LOJ 270 PRINT "INPUT DAY: ";INPUT #16;D
OWJ 280 PRINT CHR$(125);:POSITION 15,10:PRINT "CALCULATING..."
TEJ 290 X=PH
IQJ 300 IF Y>=1986 THEN Z=1984
GKJ 310 IF Y<1986 THEN Z=1988
CBJ 320 IF Y>=1986 THEN S=0
YSJ 330 IF Y<1986 THEN S=1
GFJ 340 GOSUB 1720
SQJ 350 DS=N
BBJ 360 B=(360/PY)*(N/365.25)
PIJ 370 K=B
GNJ 380 GOSUB 1850
ISJ 390 B=(K*PI)/180
OWJ 400 E=B
USJ 410 Y1=EO
VIJ 420 Q=E-(Y1*SIN(E))-B
RKJ 430 IF ABS(Q)<=1.7E-05 THEN 470
YJJ 440 U=Q/(1-(Y1*ICOS(E)))
UEJ 450 E=E-U
BFJ 460 GOTO 420
XCJ 470 V=(SQR((1+Y1)/(1-Y1)))*(SIN(E/2)/COS(E/2))
GZJ 480 V=2*ATN(V)
LVJ 490 V1=(V*180)/PI
AMJ 500 L=V1+PL
XJJ 510 R=SM*(1-(Y1*Y1))/(1+Y1*ICOS(V))
WQJ 520 F=L-AN
UHJ 530 F2=IO
KLJ 540 F1=(F*PI)/180
MLJ 550 F2=(F2*PI)/180
AXJ 560 I=(SIN(F1)*SIN(F2))
EIJ 570 I=ATN(I/SQR(1-I*I+1))
GFJ 580 P=ATN((SIN(F1)/COS(F1))*COS(F2))
SOJ 590 P1=(P*180)/PI+AN
IIJ 600 IF F>=90 AND F<=270 THEN P1=P1+180
HFJ 610 IF P1<0 THEN P1=P1+360
LEJ 620 P=(P1*PI)/180
JLJ 630 R2=R*ICOS(I)
VNJ 640 X=1975
DXJ 650 IF Y>X THEN Z=1972
BRJ 660 IF Y<X THEN Z=1976
WLJ 670 IF Y>X THEN S=0
UCJ 680 IF Y<X THEN S=1
GNJ 690 GOSUB 1720
IFJ 700 T=(360/365.25)*(N/1.00004)
PYJ 710 K=T
GLJ 720 GOSUB 1850
QAJ 730 T=K
LPJ 740 T1=(T*PI)/180
BAJ 750 C=0.01672
YTJ 760 J=T+(360/PI)*C*SIN(T1-0.051943)
GNJ 770 J=J+9.5343
FJJ 780 IF J>360 THEN J=J-360
BFJ 790 IF J<0 THEN J=J+360
FUJ 800 H=((J-102.51044)*PI)/180
FTJ 810 R1=(1-C*IC)/(1+C*ICOS(H))
VAJ 820 U1=((P1-J)*PI)/180
VCJ 830 U2=((J-P1)*PI)/180
KBJ 840 IF R2<R1 THEN GOTO 900
RBJ 850 Q1=(R1*SIN(U1))
IQJ 860 Q1=Q1/(R2-(R1*ICOS(U1)))
GYJ 870 Q1=ATN(Q1)
UCJ 880 Q2=(Q1*180)/PI+P1
CDJ 890 GOTO 940
RBJ 900 Q3=(R2*SIN(U2))
IRJ 910 Q3=Q3/(R1-(R2*ICOS(U2)))
GYJ 920 Q3=ATN(Q3)
ALJ 930 Q2=(Q3*180)/PI+J+180
LWJ 940 IF Q2>360 THEN Q2=Q2-360
HSJ 950 IF Q2<0 THEN Q2=Q2+360
NOJ 960 Q4=(Q2*PI)/180
IIJ 970 Q5=(R2*(SIN(I)/COS(I))*SIN(Q4-P))
YIJ 980 Q5=Q5/(R1*SIN(U1))
HJJ 990 Q5=ATN(Q5)
KQJ 1000 E1=0.4009364

```

program continued on page 187

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### HabaWriter Word continued from page 187

menu which is fairly conventional. You can search and replace as desired and find most any text you want. You can jump up and down pages at a time or just jump to any page you wish. Naturally, there are windows for each selection to ask the appropriate questions and safe guards.

#### Format Menu

The Format menu shown in Figure 8, contains the set up for the document for margins, tabs, page breaks and pagination. There are also alignments left, right center and flush. You can then format a single paragraph or the whole document. The formatting is quite fast also.

One problem I have not been able to answer is wanting to double line a document automatically. When writing articles for magazines, you are requested to double line the printing for editing purposes. To do this, I had to go back and manually do the task. This seems to be a fundamental deficiency with the HabaWriter. I hope to find something buried in the operation that will let me do this.

#### Style Menu

Figure 9 shows the Style menu which allows for Plain Text, Underlined text and Bold text. As it comes with Epson printer set up and I have an Epson, there was no difficulty with performing a document print or even using Atari's ALT-HELP screen dump capability. One item that is noted is that when using a color monitor, the underline operation does not show up on the screen but does on the printer.

The other problem that I detected is that normally you can switch back and forth between bold and plain text just by selecting the style and then reformatting the document. For the case where I inadvertently got into the Underline mode and typed several pages in that mode. I was unable to eliminate it from my printing. I finally just junked the first effort and started over. I have been afraid to experiment with the underline mode since. I would suggest you be cautious in this area. Even after this, I got back into it and not by selecting it. It might be due to doing screen dumps or something not normal to word processing. I'll keep digging because Haba puts out good software and I must be doing something abnormal.

#### Print Menu

Finally comes the Print

menu. Figure 10 presents the four items which are Print Document, if selected Print Block, Print Options which are the number of lines per page and such and then the Printer file which now contains a file for the Epson. I haven't tried to investigate how you set it up

for other printers as mine is an Epson and I'm not too interested.

#### Shortcuts

After you've used the menus for a while, you find it takes a little longer than you'd like to flip back and forth to the

menus so Haba has provided an excellent interface with the FUNCTION key to do the menu jobs. After you press the HELP key you can see Figure 11 which presents the matrix of Function keys in combination with Shift, Control and Alternate keys to perform all of the

menu functions. I suggest you pull in the shortcut with the Help key and get a screen dump with the Alt-Help keys and tape the dump near your keyboard. As I get used to the Function matrix, I find I can move through a document

continued on page 189

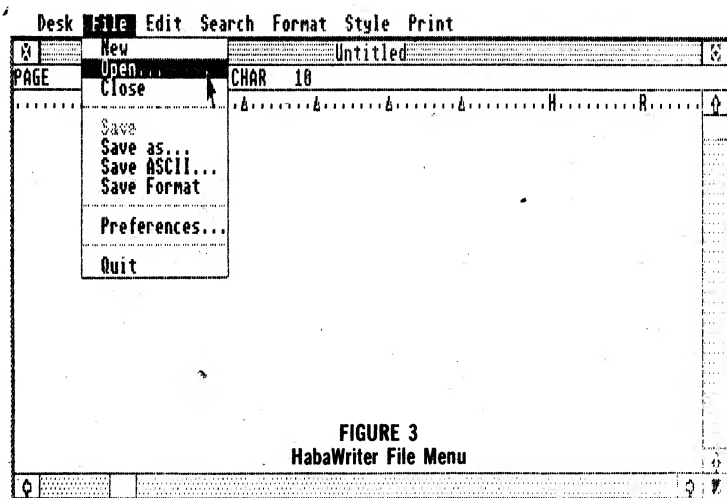


FIGURE 3  
HabaWriter File Menu

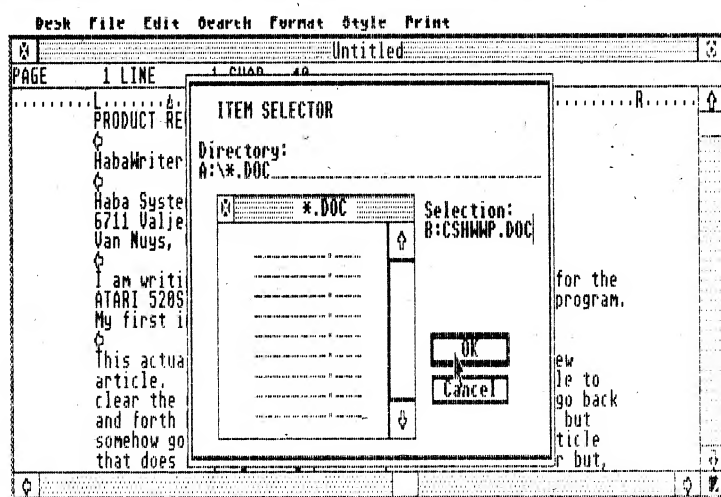


FIGURE 4 HabaWriter Edit Menu

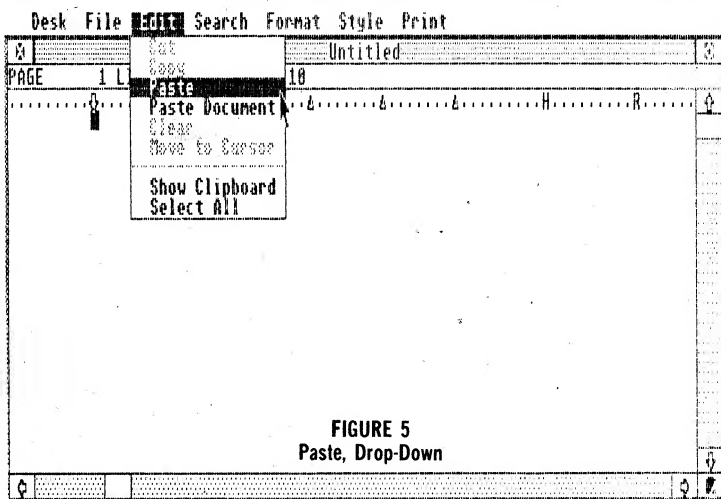


FIGURE 5  
Paste, Drop-Down

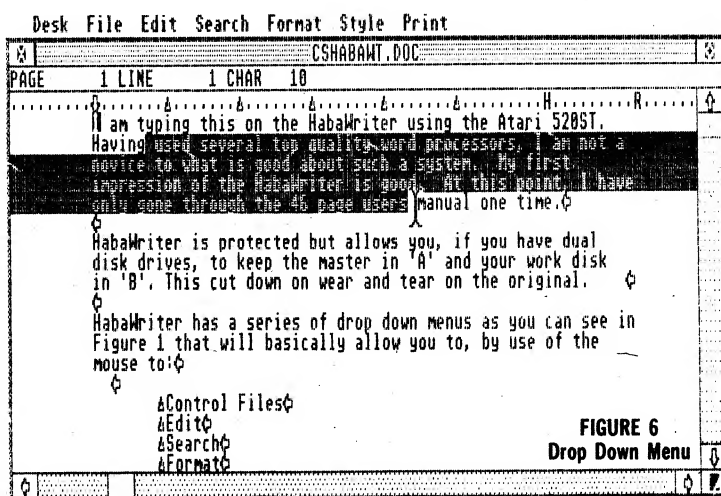


FIGURE 6  
Drop Down Menu

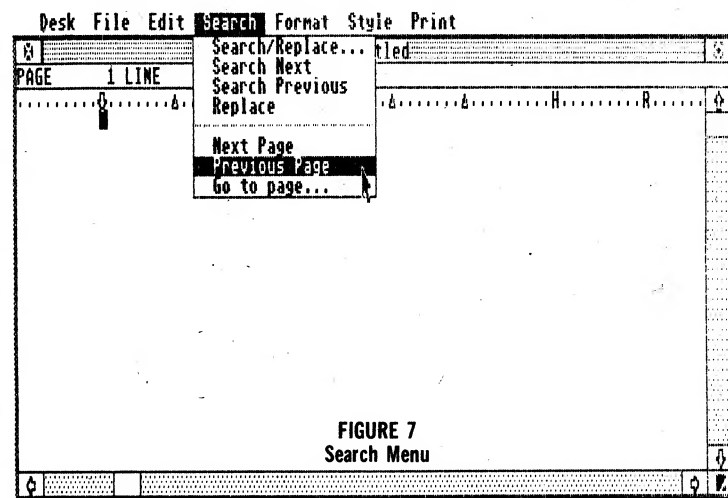


FIGURE 7  
Search Menu

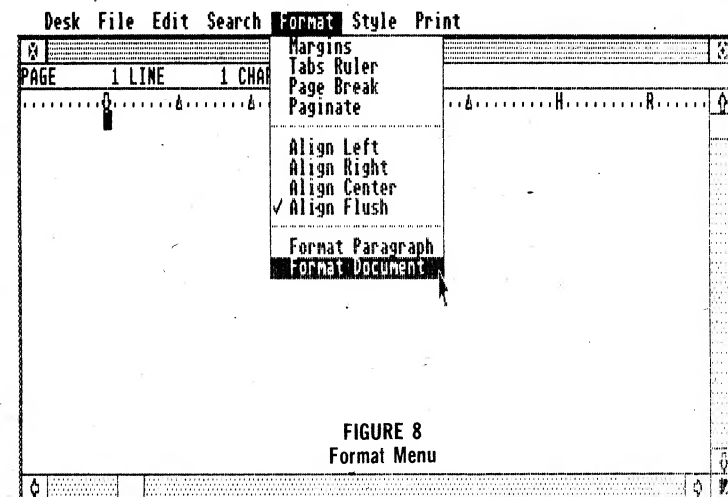


FIGURE 8  
Format Menu

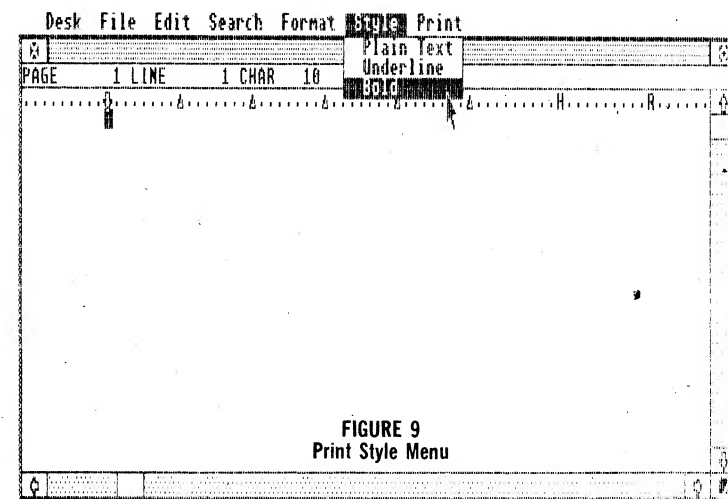


FIGURE 9  
Print Style Menu

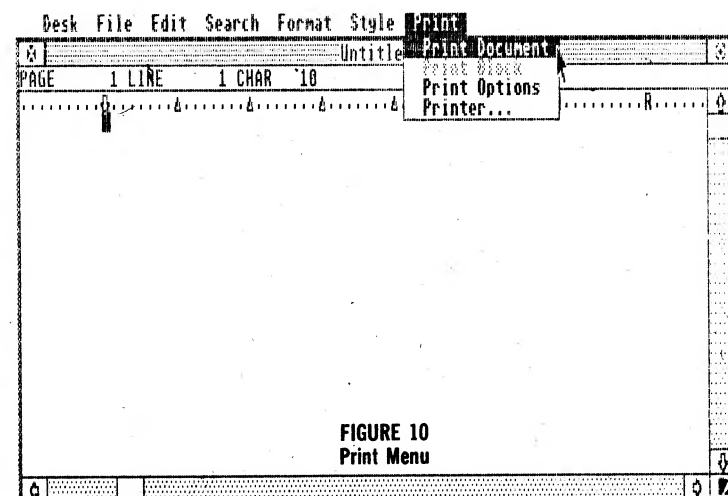
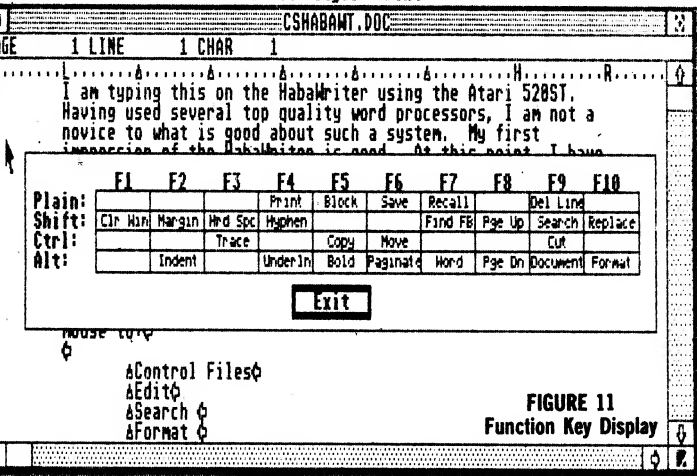


FIGURE 10  
Print Menu

Desk File Edit Search Format Style Print

FIGURE 11  
Function Key DisplayHabaWriter Word  
continued from page 188

about as fast as I can think and type.

One of the nice features is being able to jump to the top, bottom, left and right of a line or the full page. This is done by the CLR HOME and arrow keys. Press CLR HOME ONCE followed by any arrow and you move in that direction, i.e., to beginning or end of line or up or down one screen page of 18 lines. Pressing CLR HOME Twice then the arrow, you jump to the top or bottom of the document or to the full "edge of the paper" I got a lot

of use out of this feature.

Another nice little feature is that you can move the cursor with the "I" mouse just by locating it and doing a one-click.

## Conclusion

Overall, I like the HabaWriter Word Processor. It has all of the features I need except for the lack of double line draft presentation. If I

conquer the underline problem I'll have a very respectable word processor. At a list price of \$74.95, it is quite nice. When the Speller becomes available and shows compatibility and usability, I expect I'll make the HabaWriter my basic word processor.

For further information contact: Haba Systems, Inc., 6711 Valjean Avenue, Van Nuys, CA 91406.

Robot Intelligence  
continued from page 69

change in its movement pattern. Once the way is clear, it will start moving again and continue moving in the same direction until it runs into another barrier.

The first book, "Robot Intelligence," was written when the TRS 80 computer was highly popular and the programs are written in Basic with that machine in mind. The second book, "Projects In Machine Intelligence," is the sequel to the first book. This book has programs in TRS-80 and Applesoft Basic and the Applesoft Basic programs can be used with some modifications by Commodore and Atari owners. I would suggest that for best results the Atari owner use Basic XL or Microsoft Basic for the programs.

I bought the book "Projects in Machine Intelligence For Your Home Computer" first because of the Applesoft program examples it had, but the first book, "Robot Intelligence," has more about the theory of artificial intelligence and how to implement testing procedures to measure the creatures' response to its environment.

After you are able to create a simple Alpha creature you can then use the same subroutines in larger and more complex programs to increase the scope of the study. This modular concept allows you to load in a previously created program and then modify that program to a higher level. You will be creating a number of different creatures and environments which will include:

1. A fundamental Alpha creature which reacts to its environment but does not learn from experience.
2. A killer Alpha creature which may attack and destroy any other creature it meets.
3. A simple Alpha creature community.
4. A killer Alpha creature in a community of non-killers.

5. A killer Alpha duel.
6. A Beta creature which learns from its experiences.
7. A killer Beta creature.
8. A mixed community of Alpha and Beta creatures.

In addition to all those different combinations, Dave Heiserman has shown how to give the creatures special environments such as mazes and how to collect data on their responses.

I have to say that I have read a number of Dave Heiserman's books including, "Radio Astronomy for Amateurs," and "Experiments In Four Dimensions," and have found that his books have lead me down paths which are always running over interesting and new territory. After I had the chance to study the subject of artificial intelligence using Dave Heiserman's programs on my Atari computer, I also changed my perception of low level animal intelligence. For

example, when I see a sow bug crossing my back yard I don't feel it thinks, "What a nice day! I think I'll walk on over to the flower garden today," but really thinks more like, "Walk, walk, walk," (BUMP) "What the hell is that?? Turn, turn, walk, walk," (BUMP) "What the hell is that? Turn, walk," etc. I have included a short Alpha creature program in Atari Basic to demonstrate the basic concept and to assist you in converting the programs in the book from Applesoft to Atari Basic. I would suggest that for the most enjoyment of this new field of study you should purchase both books. For a total of \$22.00 you will gain insight into a new and exciting subject and receive more pure creative enjoyment than you will get from any \$25 or \$40 game. Perhaps some day you will even write a paper on teaching Beta creatures how to build their own two dimensional houses!

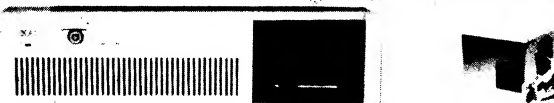
```
10 REM FUNDAMENTAL ALPHA DEMO
15 REM 005 TITLE "ALPHA1"
20 CLR
25 REM FROM PROJECTS IN MACHINE INTELLIGENCE FOR YOUR HOME COMPUTER
30 REM BY DAVID HEISERMAN
40 GOSUB 1000
110 REM ** INITIALIZE ALPHA POSITION**
120 LET PX=12+INT(5*RNND(1))-2:PY=12+INT(5*RNND(1))-2
124 REM ** ALPHA MOTION CODE **
125 CX=INT(5*RNND(1))-2:CJ=INT(5*RNND(1))-2:IF CX=0 AND CJ=0 THEN 125
130 GOSUB 2000
135 POKE 752,1
140 POSITION PX,PY:PRINT " "
145 PX=PX+PY=PY
150 POSITION PX,PY:PRINT " "
154 POKE 752,1
155 GOTO 130
160 REM
165 REM
1000 REM ** CREATE THE BORDER**
1005 GRAPHICS 0
1010 PRINT " "
1020 PRINT " "
1021 LET N=N+1
1025 IF N=15 THEN GOTO 1050
1026 REM
1030 GOTO 1020
1050 PRINT " "
1053 POKE 752,1
1055 POSITION 10,17:PRINT "BASIC ALPHA DEMO"
1056 POSITION 2,18:PRINT "FROM PROJECTS IN MACHINE INTELLIGENCE"
1057 POSITION 2,19:PRINT "FOR YOUR HOME COMPUTER"
1058 POSITION 2,21:PRINT "BY DAVID HEISERMAN"
1060 RETURN
2000 REM ** SEARCH AHEAD ROUTINE**
2005 NX=PX:NY=PY:CH=32:CV=32
2010 SX=SGN(CX):SJ=SGN(CJ):AX=ABS(CX):AJ=ABS(CJ)
2015 IF AX=0 THEN 2040
2020 AX=AX-1
2025 IF SX=0 THEN NX=NX+1:GOTO 2035
2030 NX=NX-1
2033 REM ** LOCATE REPLACES APPLE SCR N,X,Y FUNCTION**
2035 LOCATE NX,NY,CH
2040 IF AJ=0 THEN 2065
2045 AJ=AJ-1
2050 IF SJ=0 THEN NY=NY+1:GOTO 2060
2055 NY=NY-1
2060 REM ** LOCATE REPLACES APPLE SCR N,X,Y FUNCTION**
2060 LOCATE NX,NY,CV
2065 IF NOT (CX=32 AND CV=32) THEN 125
2070 IF AX=0 AND AJ=0 THEN RETURN
2075 GOTO 2015
2080 REM
2085 REM
```

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\*180\*\*

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Our already famous XPC-XT cabinet has an 8-slot back panel with additional cut-outs for two RS-232 I/O ports. Features mounting for up to four half height peripherals, standard slide-off-the-front top piece, solid, molded front bezel, and heavy gauge steel. CAB-6068-00

\*75\*\*

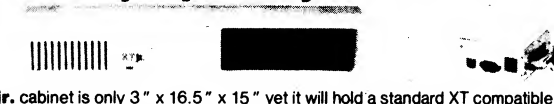
Choose a 135 watt or a 150 watt power linear power supply with side-mount On-Off switch and quiet DC cooling fan. 115/230 VAC, 50/60 Hz. 135 Watt POW-1040-00

\*89\*\*

150 watt POW-1044-00

\*115\*\*

## XTjr. by XOR System Cabinet



The XTjr. cabinet is only 3" x 16.5" x 15" yet it will hold a standard XT compatible motherboard. A special extender card BOA-5068-00 is used in the 5th slot to allow up to four add-on boards mounted horizontally in the cabinet. Two additional cut-outs are supplied for serial I/O. The cabinet price includes a switching power supply. Front panel cut-out for a half-height floppy or hard disk. AC switch and AC outlet for monitor on the rear panel. CAB-5068-00 w/PS.

\*135\*\*

## XTC by XOR System Cabinet / Power Supply



The XTC cabinet is perfect for industrial and in an engineering environment. Hinged door panels on both sides (removable) allow easy access to components within. Also, a perfect system cabinet for the system integrator wanting to get away from the standard PC look. Front mount AC switch, cut-outs for three half-height peripherals and mounting behind the panel for a full-height hard disk or 1 or 2 half-height hard disks. Will accept mounting of the XT, XTURBO, and XBC motherboards 8-slot rear panel with two additional cutouts for serial I/O. CAB-7068-00 assembled

\*99\*\*

Matching power supply; the switching power supply is a 135 watt unit that mounts in the top rear of the XTC cabinet for added cooling capability. Includes four DC power connectors for peripherals. 110/220 VAC, 50/60 Hz. POW-1045-00

\*95\*\*

## Add-On External Cabinets



Add-on a floppy, tape back-up, or up to 33 meg of hard disk (half-height). The rear panel has a universal AC input outlet, AC switch, and an automatic 110/220 VAC 50/60 Hz switch for easy configuration. Four cut-outs for ribbon cables are also provided. Switching power supply is included with cabinet and comes pre-installed and tested. Color: Grey beige, DC outputs: +5v @ 5.0 amps, +12v @ 1.5 amps.

This unit features a heavy duty linear power supply that has enough power to drive most any hard disk/tape back-up combo. +5v @ 5 amps, +12v @ 2.5 amps, and 110/220 VAC-50/60 Hz. 1/2 Height w/PS CAB-6020-00

\*105\*\*

Full Height w/PS CAB-6050-00

\*125\*\*

## Dual Half-Height Cabinet



The one you've been waiting for! Floppy/Tape or dual Floppy, or Hard Disk/Tape, whatever combination you choose. Self-contained power supply with two DC connectors provided. Universal AC input, AC rear switch, and cut-outs for any combination of ribbon cables. Sturdy metal case painted in standard matching colors: Grey beige. 3.0" x 15.5" x 10.3" CAB-6040-00 assembled

\*135\*\*

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Telex: 887841 XORDATA HTBH  
15392 Assembly Lane, Unit A • Huntington Beach, CA 92649

### Trivia Mania continued from page 185

- 3) Eating
- 4) Hammer throw

Q. Most popular hobby in America:

- 1) Photography
- 2) Stamp Collecting
- 3) Coin Collecting
- 4) Drinking

(Answers to above are #1 and #2 respectively, for those just dying to know.)

### Playing The Game

*Trivia Mania* can be played by one to four players, but I doubt many will be using the one-player option. A trivia game is definitely a social type of entertainment; the more players that participate, the

more exciting the game. Unfortunately, *Trivia Mania* falls with the two, three and four player options as well. Rather than taking turns answering questions, each player must answer a group of 25 (for a four-player game), 33 (for a three-player game) or 50 (for a two player game) questions--all in succession. That player then gets his score and is finish-

ed. The next player then answers his lot of questions, and so forth. The competitiveness of the trivia game has been effectively destroyed, and this is *Trivia Mania's* greatest fault. Nobody wants to wait around while other players answer 25, 33 or 50 questions in a row. The game would have been infinitely better if players took turns

answering one question at a time.

### Documentation

The 12-page instruction booklet describes the game well, but is confusing on the subject of using the editor to create your own trivia databases. For example, one section says that "you are allowed to index our existing databases" and proceeds to explain how to start the indexing procedure. Yet the instructions fail to mention what indexing does for you or why you would want to do it.

### Conclusions

While *Trivia Mania* offers the unique feature of adding your own trivia data, the method of game-play is dull. The excitement of a multi-player Trivial Pursuit game just isn't here. XLENT Software can still use those 1800 trivia questions--perhaps with an improved program that would allow real multi-player participation.

Requires:  
Atari 800/800XL/130XE  
Program Author:  
Jan Iverson

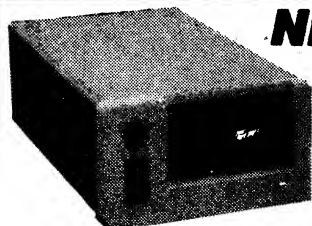
Price:  
\$29.95

Warranty:  
90 days, free replacement

Manufacturer:  
XLENT Software  
P.O. Box 5228  
Springfield, VA 22150  
(703) 644-8881

### Ratings For Trivia Mania

	*Poor, **Fair
	***Good, ****Excellent
Design	*
Practicality	**
Documentation	**
Value For Price	**
Average	**



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  - 320 x 200 (color) and 640 x 200 (B/W) resolutions in APA mode
  - Centronics printer port
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  - Light pen
  - Monochrome (8 x 8 character box) on monochrome (TTL) monitor

### MFP CARD ..... \$9950

- (384-PLUS MULTI FUNCTIONS CARD)
- Up to 640K RAM on board
  - Parallel printer
  - Clock/calendar
  - Serial port (optional 2nd serial available)
  - Spooler

### IOF CARD ..... \$10900

- (MULTI-I/O CARD)
- One EIA-RS232C port (Sockets for optional 2nd EIA-RS232C port)
  - One Centronics parallel printer port
  - Clock/calendar
  - Set/retrieve clock program
  - Game port
  - Controls 2 half height 5-1/4" DSDD floppy disk drives

### PC 90 Super XT16 motherboard ..... \$18500

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### PC 92 X Turbo Motherboard ..... \$22500

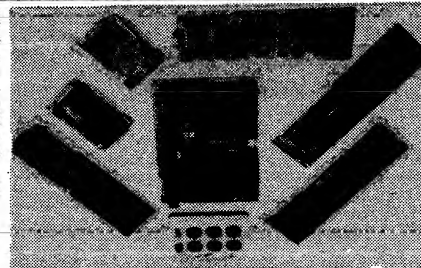
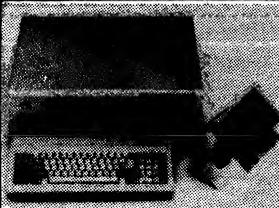
Capable of 6.77 Mhz operation, potential of 640K on board (RAM extra)

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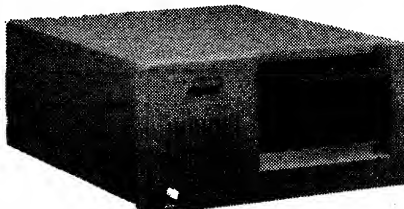
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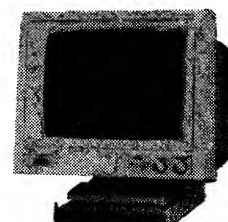
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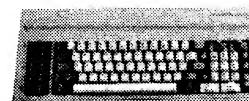
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Type 5151  
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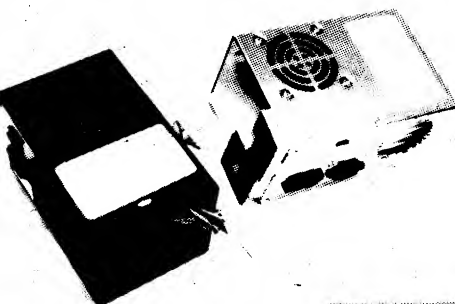
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IBM  
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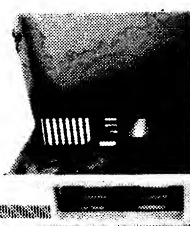


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